Paranesippus incisus n. gen., n. sp., a New Parasitic Copepod of the Family Pandaridae[1]

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By the courtesy of Professor Y. Okada, the director of our faculty, I have been enabled to examine and describe a female copepod representing a new genus and species of the family Pandaridae. According to him it was obtained from the outside surface of *Acanthidium eglantina* (Jordan and Snyder) caught off Kannoura, Kôti Prefecture. Sincere thanks are hereby returned to the named professor for his favours.

Genus Paranesippus n. gen.

Female: Cephalon fused with 1st thoracic segment; carapace with lateral lobes extending back beyond central region. Second to 4th segments distinct; 2nd segment with lateral plates on both sides, 4th with a pair of dorsal plates, and 3rd without either of these. Genital segment much enlarged and entirely coalesced with 6th segment. Abdomen one segmented, attached to ventral surface of preceding segment, and invisible from above. Antennae and maxillipeds as usual. First maxillae transformed into bosses, second maxillae two jointed, close to the sides of elongate conical mouth tube. Sternal furca absent. Four pairs of legs biramose, rami fringed with well-developed plumose spines in all. Both rami two jointed in first pair, three jointed in following two pairs, endopod and exopod three jointed in fourth pair. Fifth leg rudiments present. Caudal rami laminate.

Male unknown.

As the second to fourth thoracic segments are distinct one from another as well as from the carapace, and the four pairs of legs are biramous, the new genus ought to be classified among the family Pandaridae. There are lateral lobes on the second segment, dorsal plates on the fourth, but neither of these on the third, and sixth segment is fused with the fifth. A similar condition prevails in the genera *Nesippus* Heller and *Prosaetes* Wilson. However, the new genus is different from the former in the distinctness of the third segment from the fourth, and from the latter in the shortness of the third segment. Another marked difference from both of these genera is found in the number of joints composing the four pairs of legs, since in these the first three legs have the rami two jointed and the fourth legs have them one jointed.

Paranesippus incisus n. sp.

Type: A single female parasitic on the outside surface of *Acanthidium eglantina* (Jordan and Snyder) caught at a depth of 200–400 m. off Kannoura, Kôti Prefecture (Figs. 1, 2). It will be deposited in Mie Prefectural University.

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Body flattened, 8.8 mm. × 4.2 mm., brownish in alcohol.

Carapace orbicular, slightly wider than long including lateral lobes, and less than half as long as entire body. Front prominent, triangular, two sides widely round, with a slight notch about the middle and hind border horizontal. Frontal plates well developed, four fifths as wide as carapace, with a distinct median incision and round lateral ends. Posterior lobes linguiform, blunt, scarcely attaining hind border of third thoracic segment. Longitudinal sutures on dorsal face parallel, their anterior ends far from reaching the front of carapace. Eye inconspicuous.

Second to fourth thoracic segments distinct. Second segment more than two thirds as wide as carapace, one fifth as long as its own width, with reentrant, arcuate hind border, and with quadrate lateral plates, extending outwards and backwards; apices of plates truncate and partly concealed beneath posterior lobes of carapace. Third segment lentiform, as long as, but narrower than, preceding segment, into whose posterior excavation it is fitted. Fourth segment contracted in front into a short narrow neck and expanded in the rear into a pair of circular dorsal plates covering anterior end of succeeding segment; the plates separated from each other by a median sinus. Width of the segment across the plates a little greater than that of third segment, length including the plates a little less than that of second and third segments combined. Genital segment strongly inflated, with length equal to that from the front of carapace to the end of third segment, three fourths as wide as long, elliptical in outline, with gracefully curved sides, but trilobed at the hind end by a pair of deep longitudinal incisions. Median lobe of this end with a horseshoe-shaped outline, much wider than triangular lateral ones, and extending back beyond these. Sides of the segment curled ventrally, forming narrow longitudinal flaps. Abdomen about two sevenths as long as genital segment, more than half as wide as long, somewhat narrowed at anterior end. It is attached to ventral surface of genital segment a short distance behind the center, so as to be entirely concealed in a dorsal view. Egg strings folded several times on either side of abdomen.

First antennae with basal joint relatively narrow, thickly covered with plumose spines on distal portion; apical joint filiform, with simple spinules. Second antennae with an oval boss at the base, claw with its tip damaged in the present specimen, but retaining two spinules. Mouth tube elongate conical, enclosing styliform mandibles. First maxillae transformed into obovate corrugated bosses, close to the bases of first antennae. Second maxillae indistinctly two jointed; basal joint elongate, apical joint short, standing at right angles to the basal and tipped with a short spine. First maxillipeds have two unequal claws, doubly edged with narrow pectinate rim, near the base of claws, a hemispherical boss, thickly covered by fine cirri. Palm of second maxillipeds massive, bearing a short dactyliform basal process; finger broken. A pair of fusiform corrugated bosses present on the sternum in the region just in front of the bases of the named limbs and on either side of the midline.

Four pairs of legs biramose, with rami fringed with well-developed plumose spines in all. Both rami two jointed in first pair, three jointed in succeeding two, inner member two jointed, and outer member three jointed in fourth. Protopodites of both sides widely separated from each other in first and last pairs, rather small in first, but strongly dilated in last. They are fused together forming a wide apron in other pairs. Arrangement of spines on the legs is given in Table 1.

First legs with anterior face of protopodite with very fine, parallel striations. Second legs with bosses covered with similar striations on basal apron, two on anterior face and one on posterior face on each side. Third legs

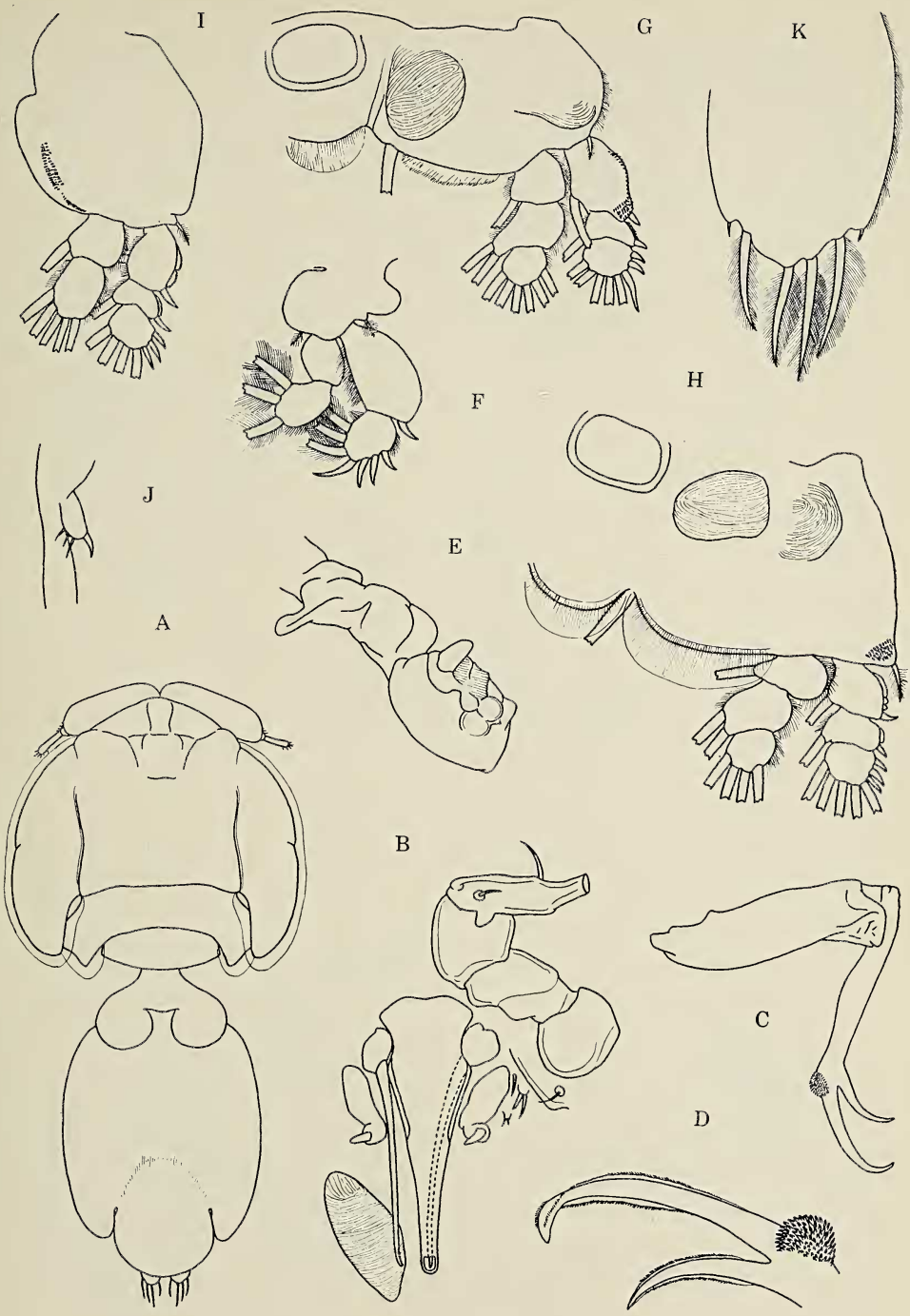

FIG. 1. *Paranesippus incisus* n. gen., n. sp., female. A, Dorsal aspect; B, second antenna, mouth tube, second maxilla and striated boss in front of the base of second maxilliped; C, first maxilliped; D, tip of first maxilliped, further enlarged; E, second maxilliped; F, first leg; G, second leg; H, third leg; I, fourth leg; J, fifth leg; K, caudal ramus. (A × 9.1, B × 41, C, F-K × 37, D × 95, E × 22.)

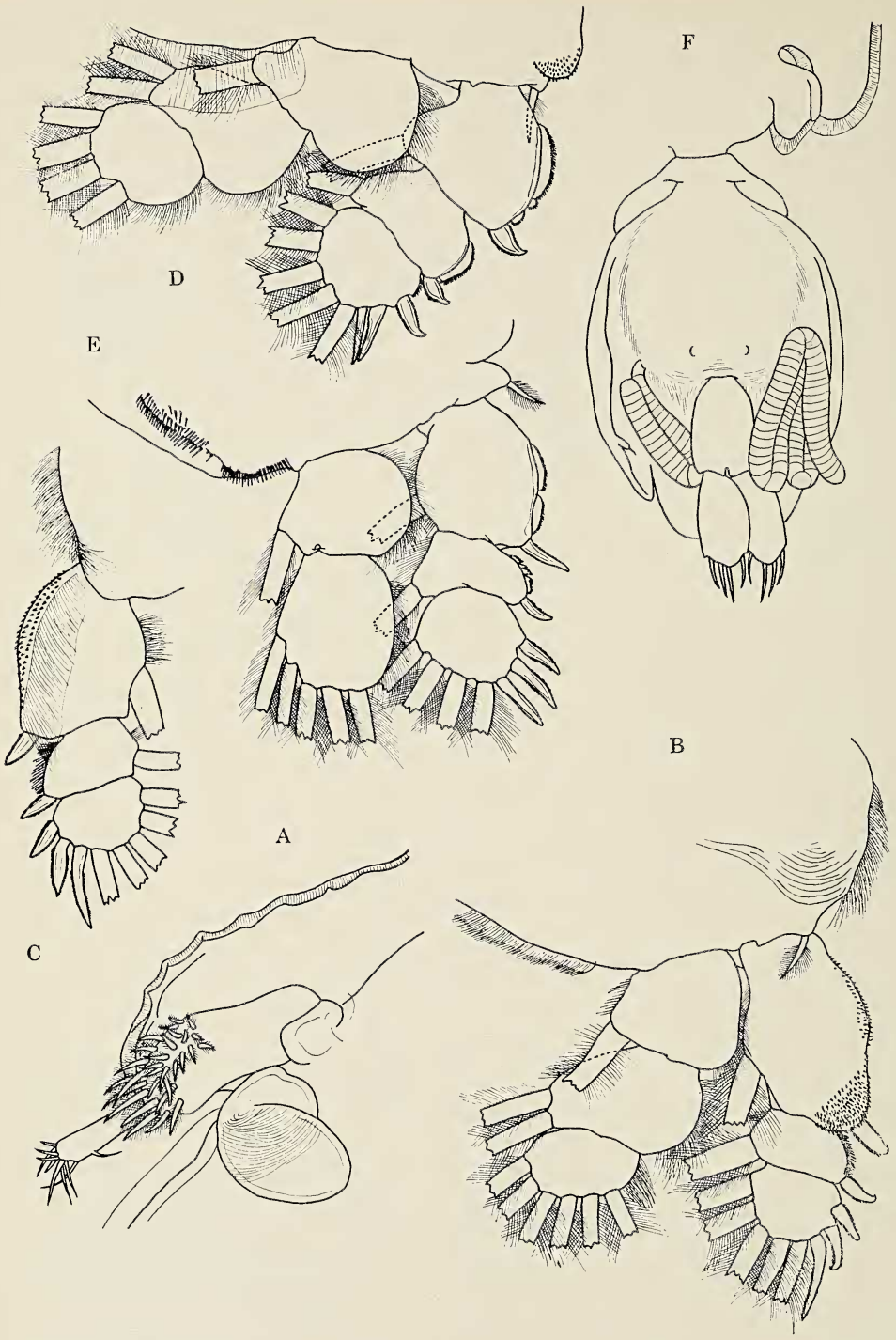

FIG. 2. *Paranessipus incisus* n. gen., n. sp., female. A, First antenna with rudiment of first maxilla; B, second leg; C, exopodite of second leg, posterior face; D, third leg; E, fourth leg; F, posterior part of body, ventral aspect. (A × 41, B-E × 83, F × 12.)

TABLE 1
DETAILS OF THE ARMATURE OF THE LEGS OF *Paranesippus incisus* N. SP.

LEG	BORDER	STERNAL PLATE	PROTOPODITE	EXOPODITE			ENDOPODITE		
				I	II	III	I	II	III
I.....	outer		1p	1H	c, 4H			c	
	inner		1p	c	c, 3P			3P	
II.....	outer		c, 1p	C, f, 1H	C, 1H	3H	c	c	c
	inner	f	1P, f	c, 1P	c, 1P	5P	c, 1P	c, 2P	6P
III.....	outer		C, 1p	C, 1H	C, 1H	C, 3H	c	c	c
	inner	f	1P, f	c, 1P	c, 1P	5P	1P	c, 2P	4P
IV.....	outer		1p	C, 1H	C, 1H	3H	c	c	
	inner		C	c, 1P, c	c, 1P	4P	1P	c, 5P	

Abbreviations: C, row of cirri; c, row of hairs; f, flange formed by fusion of hairs; H, simple spine; P, longer plumose spine; p, shorter plumose spine. Roman numerals indicate the numerical orders of legs or of joints, arabic numerals the numbers of spines and setae present on them.

with two pairs of bosses only on anterior face. Cirri on outer margin of exopodite of last two legs more or less fused together forming pectinate rims. Those on first exopodite joint of second legs and those at outer angle of protopodite of third legs cover a somewhat wider area. Non-plumose spines on exopodite of all legs with double row of fine pectination. Fifth leg rudiments are small, oboval papillae located on side flaps of genital segment at about its posterior one-third. They are armed with a short apical spine and with three setae on outer border. Caudal rami as long as abdomen, with four subequal plumose spines which are interposed between two minute spinules, and with finely ciliated inner border. Male unknown.

In addition to the generic characters, the present species is distinguished from the known species of *Nesippus* and *Prosaetes* by its trilobed genital segment. The median lobe probably represents the fused sixth segment, which is distinct in some other pandarids, for it is demarked from the fifth segment proper by an inconspicuous, anteriorly arched, surface groove.

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